



IN THE CLAIMS:

1. (currently amended) A method of advancing a mole to define a passageway through a composition between first and second locations spaced from each other a substantial first distance, the method comprising the steps of:

attaching the mole to a cable;

providing a support;

placing the support against an upwardly facing surface;

bearing the support against a vertically extending surface with the support remaining against the upwardly facing surface;

providing a cable pulling assembly on the support; and

operating the cable pulling assembly to: a) cause a pulling force on the cable to be continuously applied through the cable pulling assembly to the cable and therethrough to the mole to thereby cause the mole to be advanced in a path a substantial second distance at least partially over the first distance between the first and second locations; and b) produce a reaction force to the pulling force through the support upon the vertically extending surface.

2. (original) The method of advancing a mole to define a passageway according to claim 1 wherein the step of operating the cable pulling assembly comprises operating the cable pulling assembly to cause the pulling force on the cable to be continuously applied as the mole is advanced over the entire first distance between the first and second locations.

3. (currently amended) The method of advancing a mole to define a passageway according to claim 1 wherein the step of providing a cable pulling assembly comprises providing a cable pulling assembly comprising a drive, a gear assembly, and a capstan assembly, the drive operable to operate the gear assembly to cause at least a part of the capstan assembly to be driven around a first axis so as to cause the cable to be engaged and pulled by the part of the capstan assembly as the part of the capstan assembly is driven around the first axis, wherein the support has a top and bottom and the first axis resides below the top of the support.

4. (original) The method of advancing a mole to define a passageway according to claim 3 wherein the step of providing a gear assembly comprises providing a gear assembly comprising a sun gear that is driven by the drive and at least one planet gear that is drivingly engaged between the sun gear and the part of the capstan assembly.

5. (currently amended) The method of advancing a mole to define a passageway according to claim 1 wherein the step of providing a support comprises providing a support that acts between the composition and the cable pulling assembly and that transfers directly to the composition a reaction force generated by the cable pulling assembly as the cable pulling assembly is operated.

6. (original) The method of advancing a mole to define a passageway according to claim 5 wherein the step of providing a support comprises providing a support comprising a reaction plate with an enlarged, substantially flat surface, that is borne against the composition at the second location.

7. (original) The method of advancing a mole to define a passageway according to claim 6 wherein the step of providing a support comprises providing a support comprising a frame to which the cable pulling assembly is releasably attached and a reaction cage acting between the frame and the reaction plate.

8. (currently amended) The method of advancing a mole to define a passageway according to claim 1 further comprising the step of releasably attaching the cable pulling assembly to the support in an operative position by: a) relatively repositioning the cable pulling assembly and support without requiring use of any separate fasteners to maintain the cable pulling assembly attached to the support in the operative position; and b) guidingly pivoting the cable pulling assembly relative to the support from a preassembly position into the operative position.

9. (original) The method of advancing a mole to define a passageway according to claim 1 further comprising the step of causing operation of the cable pulling assembly to be automatically stopped as an incident of the mole being advanced to a predetermined position relative to the cable pulling assembly.

10. (original) The method of advancing a mole to define a passageway according to claim 1 further comprising the step of causing a conduit to follow movement of the mole from the first location to the second location whereby a continuous passageway is defined by the conduit between the first and second locations.

11. (original) The method of advancing a mole to define a passageway according to claim 1 wherein the step of providing a cable pulling assembly comprises providing a cable pulling assembly comprising a capstan assembly comprising an annular cable-engaging part and a drive that is operable to move the cable-engaging part around a first axis so that the cable is engaged by the cable-engaging part and pulled as the cable-engaging part is moved around the first axis.

12. (currently amended) The method of advancing a mole to define a passageway according to claim 11 further comprising the step of locally exerting a radial force on the cable through a roller as the drive is operated to urge the cable toward the cable-engaging part of the capstan assembly.

13. (original) The method of advancing a mole to define a passageway according to claim 11 further comprising the step of bearing the cable against the cable-engaging part of the capstan assembly through in excess of 180° around the first axis.

14. (original) The method of advancing a mole to define a passageway according to claim 11 further comprising the step of bearing the cable against the cable-engaging part of the capstan assembly through on the order of 270° around the first axis.

15. (currently amended) An apparatus for defining a passageway through a composition between first and second spaced locations, the apparatus comprising:

a cable pulling assembly; and

a support for the cable pulling assembly,

the support comprising at least one downwardly facing support surface to bear against an upwardly facing surface to thereby maintain the apparatus in an operative position.

the support further comprising a reaction plate to bear on a vertically extending surface with the downwardly facing support surface bearing against an upwardly facing surface to transfer a reaction force generated during operation of the cable pulley assembly.

the cable pulling assembly operable by a drive that is operable to cause a pulling force on a cable to be continuously applied so that a mole attached to a cable can be moved under a force continuously applied to the cable through a composition between first and second spaced locations.

16. (original) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 15 further in combination with a cable and a mole attached to the cable.

17. (original) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 15 wherein the cable pulling assembly comprises a capstan assembly with an annular cable-engaging part

and a gear assembly operatively engaged between the drive and the cable-engaging part to cause the cable-engaging part to be driven around a first axis.

18. (original) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 17 wherein the gear assembly comprises a sun gear that is driven by the drive around the first axis and at least one planet gear that is drivingly engaged between the sun gear and the cable-engaging part of the capstan assembly.

19. (original) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 18 wherein the gear assembly comprises a plurality of planet gears each drivingly engaged between the sun gear and the cable-engaging part of the capstan assembly.

20. (currently amended) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 15 wherein the support comprises a reaction plate with has an enlarged, substantially flat surface that can be borne against a composition to transfer a reaction force generated by the cable pulling assembly to a composition, through which a passageway is being formed, as the cable pulling assembly is operated.

21. (original) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 20 wherein the

support further comprises a frame to which the cable pulling assembly is attached and a reaction cage acting between the frame and the reaction plate.

22. (original) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 21 wherein the cable pulling assembly is releasably attached to the frame in an operative position.

23. (original) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 22 wherein the cable pulling assembly is releasably attached to the frame by relatively repositioning the cable pulling assembly and frame, and the cable pulling assembly can be changed from a position fully separated from the frame into the operative position and maintained in the operative position without requiring any separate fasteners.

24. (currently amended) ~~[[The]]~~ An apparatus for defining a passageway through a composition between first and second spaced locations ~~according to claim 23,~~
the apparatus comprising:

a cable pulling assembly; and

a support for the cable pulling assembly,

the cable pulling assembly operable by a drive that is operable to cause a pulling force on a cable to be continuously applied so that a mole attached to a cable can be moved under a force continuously applied to the cable through a composition between first and second spaced locations.

wherein the support comprises a reaction plate with an enlarged, substantially flat surface that can be borne against a composition to transfer a reaction force generated by the cable pulling assembly to a composition, through which a passageway is being formed, as the cable pulling assembly is operated,

wherein the support further comprises a frame to which the cable pulling assembly is attached and a reaction cage acting between the frame and the reaction plate,

wherein the cable pulling assembly is releasably attached to the frame in an operative position,

wherein the cable pulling assembly is releasably attached to the frame by relatively repositioning the cable pulling assembly and frame, and the cable pulling assembly can be changed from a position fully separated from the frame into the operative position and maintained in the operative position without requiring any separate fasteners,

wherein there are a cooperating projection and receptacle, one each on the cable pulling assembly and frame, the projection defining a pivot axis, and the cable pulling assembly is changeable from a pre-assembly position into the operative position by pivoting movement of the cable pulling assembly around the pivot axis.

25. (original) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 24 wherein the receptacle is U-shaped and opens upwardly.

26. (original) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 25 wherein

there is a graspable handle on the cable pulling assembly that can be grasped and repositioned to facilitate repositioning of the cable pulling assembly relative to the frame.

27. (original) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 25 wherein the cable pulling assembly further comprises a bearing element spaced from the pivot axis and with the cable pulling assembly in the operative position the bearing element abuts to the support to transfer a reaction force generated by the cable pulling assembly to the support as the cable pulling assembly is operated.

28. (original) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 27 wherein the projection is on the cable pulling assembly and abuts to the support simultaneously as the bearing element abuts to the support with the cable pulling assembly in the operative position so that the bearing element and projection cooperatively transfer the reaction force generated by the cable pulling assembly to the support as the cable pulling assembly is operated.

29. (original) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 28 wherein the support has a U-shaped receptacle bounded by an edge to which the bearing element abuts.

30. (currently amended) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 15 wherein the cable pulling assembly comprises a capstan assembly with an annular cable-engaging part that is driven around a first axis to cause a pulling force to be exerted by the cable-engaging part on a cable, wherein the support has a top and bottom and the first axis resides below the top of the support.

31. (currently amended) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 30 wherein the cable pulling assembly is repositionable relative to the support and further comprising a cable tensioning assembly on the support for locally biasably exerting a radial force on a cable engaged by the cable-engaging portion.

32. (original) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 16 further in combination with a conduit with an internal passageway that is engaged by the mole to follow movement of the mole as the mole is moved through the cable pulling assembly.

33. (original) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 21 wherein the reaction cage is releasably connected to each of the reaction plate and the frame.

34. (original) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 15 wherein the drive is hydraulically operated.

35. (original) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 15 further comprising a switch assembly, the switch assembly causing the drive to be disabled automatically as an incident of a mole being advanced to a predetermined position relative to the cable pulling assembly.

36. (original) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 30 in combination with a cable wherein the cable bears against the cable-engaging part through at least 180° around the first axis.

37. (original) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 30 in combination with a cable wherein the cable bears against the cable-engaging part through on the order of 270° around the first axis.

38. (new) The apparatus for defining a passageway through a composition between first and second spaced locations according to claim 1 wherein the first location resides within a passageway below ground level and the step of operating the

cable pulling assembly comprises operating the cable pulley assembly with the entire cable pulley assembly below ground level within the passageway.